

10E09

# REQUEST FOR ACCESS OF ABANDONED APPLICATION UNDER 37 CFR 1.14

|   |                              |
|---|------------------------------|
| In re Application of                    |                              |
| Application Number<br><u>08/548,368</u> | Filed                        |
| Group Art Unit<br><u>100</u>            | Examiner<br><u>EX: ROMEO</u> |

Assistant Commissioner for Patents  
Washington, DC 20231

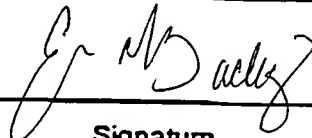
Paper No. \_\_\_\_\_  
98 OCT 22  
TECH CENTER 600/8800  
RECEIVED  
OCT 12 1998

I hereby request access under 37 CFR 1.14(a)(3)(iv) to the application file record of the above-identified ABANDONED application, which is: (CHECK ONE)

- ☒ (A) referred to in United States Patent Number 5,703,223 Column \_\_\_\_\_
- ☐ (B) referred to in an application that is open to public inspection as set forth in 37 CFR 1.11, i.e. Application No. \_\_\_\_\_, filed \_\_\_\_\_, on page \_\_\_\_\_ of paper number \_\_\_\_\_
- ☐ (C) an application that claims the benefit of the filing date of an application that is open to public inspection, i.e., Application No. \_\_\_\_\_, filed \_\_\_\_\_, on \_\_\_\_\_
- ☐ (D) an application in which the applicant has filed an authorization to lay open the complete application to the public.

Please direct any correspondence concerning this request to the following address:

ERIC BACUG C/O PENNIE & EDMONDS LLP  
1067 K. STREET N.W. SUITE 1000  
WASHINGTON, D.C. 20006

  
Signature  
ERIC BACUG  
Typed or printed name

OCT-21, 1998  
Date

|                                  |
|----------------------------------|
| FOR PTO USE ONLY                 |
| Approved by: _____<br>(initials) |
| Unit: _____                      |



US005763223A

#8890

**United States Patent** [19]

Wiley et al.

[11] **Patent Number:** 5,763,223[45] **Date of Patent:** Jun. 9, 1998[54] **DNA ENCODING A CYTOKINE THAT INDUCES APOPTOSIS**[75] **Inventors:** Steven R. Wiley; Raymond G. Goodwin, both of Seattle, Wash.[73] **Assignee:** Immunex Corporation, Seattle, Wash.[21] **Appl. No.:** 670,354[22] **Filed:** Jun. 25, 1996**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 548,368, Nov. 1, 1995, abandoned, which is a continuation-in-part of Ser. No. 496,632, Jun. 29, 1995, abandoned.

[51] **Int. Cl.<sup>6</sup>** ..... C12N 15/19; C07K 14/525[52] **U.S. Cl.** ..... 435/69.5; 435/69.5; 435/172.3; 435/252.3; 435/320.1; 536/23.1; 536/23.5; 536/24.31[58] **Field of Search** ..... 435/69.5, 172.3, 435/252.3, 320.1; 536/23.1, 23.5, 24.31; 935/11, 22, 66[56] **References Cited****U.S. PATENT DOCUMENTS**

5,512,435 4/1996 Renschler et al. .... 435/6

**OTHER PUBLICATIONS**

Bowie et al. (1990) *Science* vol. 247, pp. 1306-1310.

Smith et al., "The TNF Receptor Superfamily of Cellular and Viral Proteins: Activation, Costimulation, and Death," *Cell* 76:959-962, 1994.

Smith et al., "CD30 Antigen, A Marker for Hodgkin's Lymphoma, is a Receptor Whose Ligand Defines an Emerging Family of Cytokines with Homology to TNF," *Cell* 73:1349-1360, 1993.

Goodwin et al., "Molecular Cloning of a Ligand for the Inducible T Cell Gene 4-1BB: a Member of an Emerging Family of Cytokines with Homology to Tumor Necrosis Factor," *Euro. J. Immunol.* 23:2631-2641, 1993.

Suda et al., "Molecular Cloning and Expression of the Fas Ligand, a Novel Member of the Tumor Necrosis Factor Family," *Cell* 75:1169-1178, 1993.

Beutler and Huffel, "Unraveling Function in the TNF Ligand and Receptor Families," *Science* 264:667-668, 1994.

Banner et al., "Crystal Structure of the Soluble Human 55 kd TNF Receptor-Human TNF $\beta$  Complex: Implications for the TNF Receptor Activation," *Cell* 73:431-445, 1993.

Sachs and Lotem, "Control of Programmed Cell Death in Normal and Leukemic Cells: New Implications for Therapy," *Blood* 82:15-21, 1993.

Hollenbaugh et al., "Construction of Immunoglobulin Fusion Proteins," *Current Protocols in Immunology*, Supplement 4, 1992, pp. 10.19.1-10.19.11.

Landschulz et al., "The Leucine Zipper: a Hypothetical Structure Common to a New Class of DNA Binding Proteins," *Science* 240:1759-1764, 1988.

Hoppe et al., "A Parallel Three Stranded  $\alpha$ -Helical Bundle at the Nucleation Site of Collagen Triple-Helix Formation," *FEBS Letters* 344:191-195, 1994.

Takeda et al., "A Molecular Inventory of Human Pancreatic Islets: Sequence Analysis of 1000 cDNA Clones," *Human Molecular Genetics* 2(11):1793-1798, 1993.

Wiley et al., "Identification and Characterization of a New Member of the TNF Family that Induces Apoptosis," *Immunity* 3:673-682, 1995.

Pitti et al., "Induction of Apoptosis by Apo-2 Ligand, a New Member of the Tumor Necrosis Factor Cytokine Family," *J. Biol. Chem.* 271(22):12687-12690, 1996.

O'Mahony et al., "An Immune Suppressive Factor Derived from Esophageal Squamous Carcinoma Induces Apoptosis in Normal and Transformed Cells of Lymphoid Lineage," *J. Immunol.* 151:4847-4856, 1993.

Kroemer, "The Pharmacology of T Cell Apoptosis," *Advances in Immunology* 58:211-296, 1995.

Takahashi et al., "Human Fas Ligand: Gene Structure, Chromosomal Location and Species Specificity," *International Immunol.* 6(10):1567-1574, 1994.

Wong et al., "Antiviral Properties of TNF," in *Tumor Necrosis Factors: The Molecules and Their Emerging Role in Medicine*, Raven Press, Ltd., New York, 1992, pp. 371-381.

Goodwin et al., "Study of the Structure and Function of Trail, A New Member of the TNF Ligand Family," *European Cytokine Network*, 7(2):166, 1996.

Smith et al., "Trail: A New Member of the TNF Ligand Family That Induces Apoptosis," *European Cytokine Network*, 7(3):429, 1996.

Marsters et al., "Activation of Apoptosis by Apo-2 Ligand is Independent of FADD but Blocked by CrmA," *Current Biology*, 6(6):750, 1996.

**Primary Examiner**—John Ulm**Assistant Examiner**—Prema Mertz**Attorney, Agent, or Firm**—Kathryn A. Anderson

[57]

**ABSTRACT**

A novel cytokine designated TRAIL induces apoptosis of certain target cells, including cancer cells and virally infected cells. Isolated DNA sequences encoding TRAIL are disclosed, along with expression vectors and transformed host cells useful in producing TRAIL polypeptides. Antibodies that specifically bind TRAIL are provided as well.

**24 Claims, 2 Drawing Sheets**